On the characteristic variety of analytic differentials systems (Lie groups, Geometric Structures and Differential Equations : One Hundred years after Sophus Lie)

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The characteristic variety of linear differentials systems has ,among others,two importants properties: 1.Independence of the filtration. 2,Integrability(sometimes called "involutiveness",e.g.stability of its defining ideal by Poisson bracket). I try to examine how theses properties extend to the non linear analytic case.To extend the first one,one has first to define the "D-varieties" (which are the C-analytic analogues of Ritt's differentials algebras)and theirs morphisms.Then,two charactreistic varieties occur naturally;one is related with the theorem of Cauchy-Kovalevski.The other one ,which is smaller,but coincide generically with the first one,is related to the linearized system.The extension of property 1, is now the following:both, at least outside of the zero section,are invariant by D-isomorphisms(e.g.the Lie-Bklund isomorphisms) One proves also that a D-variety is generically an involutive differential system in the sense of E.Cartan.then,the property 2, extends at the points of involutiveness;at the other points the question is open.